**CHAPTER 5**

1. 4 major types of errors:
   1. Compile-time error: syntax and type errors detected by the compiler
   2. Link time error: duplicate definitions of functions in the program.
   3. Runtime error: code correct grammatically but unable to run due to technical/mathematical impossibility (e.g. division by 0);
   4. Logic error: Code can run but output illogical results.
2. Error kinds ignorable in student program:
3. Guarantees of every completed projects:
   1. Produce desired results of all legal inputs;
   2. Give reasonable errors for all illegal inputs;
   3. Need not worry about misbehaving hardware;
   4. Need not worry about misbehaving software;
   5. Allowed to terminate after finding error.
4. Using exceptions vs. returning error value: Exceptions help separate detection of error (done by called function) with handling of an error (done by calling function). Exceptions allow combining best of various approaches of error handing (caller & callee handling, reporting).
5. Exception process:
   1. Define an error class;
   2. Function defines error condition (e.g. illogical inputs), and **throw** error class if condition satisfied.
   3. In **main**, **try** the functions & programs;
   4. **Catch** the error class in main.
6. Pre-condition: checking and handling of error within the function. Post-condition: checking and handling of error at the return result.
7. Debugging: involves getting program to compile, to link, and do what supposed to do. Testing: after debugging, use sets of inputs to test for the output.